USFS THOMPSON FLAT CAMPGROUND (PWS # 5160053)
SOURCE WATER ASSESSMENT DRAFT REPORT

May 14, 2003

State of Idaho
Department of Environmental Quality

Executive Summary

Under the Federal Safe Drinking Water Act Amendments of 1996, all states are required by the U.S. Environmental Protection Agency (EPA) to assess every source of public drinking water for its relative sensitivity to contaminants regulated by the Act. The Idaho Department of Environmental Quality (DEQ) is completing the assessments for all Idaho public drinking water systems.

The assessment for your particular drinking water source is based on a land use inventory within a 1,000-foot radius of your drinking water source, sensitivity factors associated with the source, and characteristics associated with either your aquifer or watershed in which you live.

The delineation process establishes the physical area around a drinking water source that will become the focal point of the assessment. The arbitrary-fixed radius method was used to delineate transient water systems (Idaho Source Water Assessment Plan, pg. 15 and E5-E6) by drawing a 1,000-foot radius circle around the drinking water sources. This distance is the same for every transient drinking water source. It is impractical to develop more intensive delineations for these systems because of limited resources for protection and lack of jurisdiction over land use outside property boundaries.

This report, *Source Water Assessment for the USFS Thompson Flat Campground: Public Water System (PWS) #5160053* describes the public drinking water system, the associated potential contaminant sources located within a 1,000-foot boundary around the drinking water source, and the susceptibility (risk) that may be associated with any associated potential contaminants. This assessment should be used as a planning tool, taken into account with local knowledge and concerns, to develop and implement appropriate protection measures for this system. **The results should <u>not be</u> used as an absolute measure of risk and is not intended to undermine the confidence in your water system.**

Final susceptibility scores are derived from combining system construction scores with potential contaminant/land use scores. Potential contaminant/land use scores are more heavily weighed. Therefore, a low rating in one category coupled with a higher rating in another category results in a final rating of low, moderate, or high susceptibility. Potential Contaminants/Land Uses are divided into four categories, inorganic chemical (IOC, e.g. nitrates, arsenic) contaminants, volatile organic chemical (VOC, e.g. petroleum products) contaminants, synthetic organic chemical (SOC, e.g. pesticides) contaminants, and microbial contaminants (e.g. bacteria). As different springs can be subject to various contamination settings, separate scores are given for each type of contaminant.

The *USFS Thompson Flat Campground* drinking water system consists of one ground water spring that serves up to 150 persons, 180 days/year, with 40% use. The system rated moderate susceptible to IOCs, low susceptibility to VOCs and SOCs, and automatically high susceptibility to microbial contaminants. The spring was developed at some unknown date prior to 1978. Additionally, the campground access roads and the high agricultural chemical use of the county contributed to the overall susceptibility of the USFS Thompson Flat Campground drinking water system.

The IOCs barium, fluoride, and nitrate have been detected, but at level below the respective maximum contaminant levels (MCLs) as set by the EPA. Secondary chemicals that have been detected include sodium, chloride, copper, iron, manganese, sulfate, zinc, and TDS. Information available to DEQ (Sanitary Survey, 2000) provided information about previous microbial detections. Coliform bacteria have been detected in the source in 1993 and 1994 and a repeat detection occurred in June 1999 and July 1999. Though the system has an iodinator disinfection system, it was not in use in 2000.

The initial computer generated contaminant source inventory conducted by DEQ did not identify any potential contaminant sources within the 1,000-foot boundary. However, there are six 2-unit vault type comfort stations at the campground and access roads throughout. The vault type units provide a conduit for microbial contamination and the roads could allow all types of potential contaminants to contribute to the aquifer in the event of an accidental spill or release or in the event of a flood. The table below lists these contaminants. A copy of the susceptibility analysis worksheet for the spring for your system along with a map showing the potential contaminant sources available on the topographic background is included with this summary.

Table 1. USFS Thompson Flat Campground, Spring #1, Potential Contaminant Inventory

Site #	Source Description[1]	Source of Information	Potential Contaminants[2]
	6 vault type comfort stations	Sanitary Survey	IOC, Microbials
	Campground roads	GIS Map	IOC, VOC, SOC, Microbials

[2] IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical

Susceptibility Analysis

The susceptibility of each spring to contamination was ranked as high, moderate, or low risk according to the following considerations: physical integrity of the spring, land use characteristics, and potentially significant contaminant sources. The susceptibility rankings are specific to a particular potential contaminant or category of contaminants. Therefore, a high susceptibility rating relative to one potential contaminant does not mean that the water system is at the same risk for all other potential contaminants. The relative ranking that is derived for each spring is a qualitative, screening-level step that, in many cases, uses generalized assumptions and best professional judgement. The following summaries describe the rationale for the susceptibility ranking.

System Construction

System construction directly affects the ability of the intake to protect the aquifer from contaminants. System construction scores are reduced when information shows that potential contaminants will have a more difficult time reaching the water in the spring. Lower scores imply a system is less vulnerable to contamination. For example, if the intake structure of the surface water system is properly located and constructed to minimize impacts from potential contaminant sources, then the possibility of contamination is reduced and the system construction score goes down. If the spring was developed using a well casing to take advantage of the natural filtration of the geologic unit instead of taking the water at the surface, the water quality is more protected and the system score is reduced.

System construction for the spring was rated moderately vulnerable to contamination. The 2000 sanitary survey indicates that during the fall of 1984 and spring of 1985, a new barbed wire fence of dimensions 200 feet by 200 feet was installed around the existing spring box and collection area. In addition, a new diversion ditch was constructed, a new iodinator was installed, the water storage tank was replaced, and the upper portion of the distribution system was replaced.

The source is located west of the campground access road, approximately 200 feet above camping unit #1, at the base of a break between two flats on a wide ridge. The surface area is dry. The area above the headbox for roughly 40 feet is covered with low growing vegetation. A fence protects the campground from domestic livestock. The fence also protects the spring area from domestic livestock. The diversion ditch installed in 1985 was nearly silted-in in 2000. An old 4-foot deep concrete headbox, in which water enters from the bottom, was provided with a 5'3" high, 24" diameter concrete manway extension, and the area was backfilled to provide greater cover over the source collection area. There is no vent into the headbox. From the headbox, a 1" diameter polyethylene waterline is routed about 125 feet east northeasterly to an enclosure. The water is then transferred to a storage tank with a dirty and rusty inside. The tank vent is broken and not protected from grazing animals. Additional information about the distribution system is available (Sanitary Survey, 2000).

Potential Contaminant Source and Land Use

The spring rated moderate for IOCs (e.g., arsenic, nitrate), and low for VOCs (e.g., petroleum products), SOCs (e.g., pesticides), and microbial contaminants (e.g., bacteria). Coliform bacteria have been detected in the source in 1993 and 1994 and a repeat detection occurred in June 1999 and July 1999. Monitoring is not required for VOCs or SOCs.

The IOCs barium, fluoride, and nitrate have been detected, but at level below the respective maximum contaminant levels (MCLs) as set by the EPA. Secondary chemicals that have been detected include sodium, chloride, copper, iron, manganese, sulfate, zinc, and TDS. Information available to DEQ (Sanitary Survey, 2000) provided information about previous microbial detections. The agricultural land use within the county led to the it being rated "high" for nitrogen fertilizer use, herbicide use, and total agricultural chemical use.

Final Susceptibility Rating

An IOC detection above a drinking water standard MCL, any detection of a VOC or SOC, or a confirmed detection of total coliform bacteria or fecal coliform bacteria at the source will automatically give a high susceptibility rating to a spring, despite the land use of the area, because a pathway for contamination already exists. Additionally, having potential contaminant sources within 50 feet of the source will give an automatic high susceptibility rating. Having multiple potential contaminant sources within the 1,000-foot radius of the spring and much agricultural land contribute greatly to the overall ranking. In terms of total susceptibility, the spring rated moderate to IOCs, low to VOCs and SOCs, and automatically high to microbial contaminants. The moderate system construction score combined with the identified microbial contamination issues and the high agricultural chemical use of the county contributed to the overall susceptibility of the USFS Thompson Flat Campground drinking water system.

Options for Drinking Water Protection

This assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what ranking a source receives, protection is always important. Whether the source is currently located in a "pristine" area or an area with numerous industrial and/or agricultural land uses, the way to ensure good water quality in the future is to act now to protect valuable water supply resources.

For the USFS Thompson Flat Campground, drinking water protection activities should focus on correcting any deficiencies outlined in the sanitary survey (an inspection conducted every five years with the purpose of determining the physical condition of a water system's components and its capacity). A fence should be installed around the spring box and repairs to the distribution system should be implemented. Partnerships with state and local agencies and industry groups should be established and are critical to success. You may want to establish a dialog with the relevant state and local agencies related to wellhead protection. Drinking water protection activities should be aimed at long-term management strategies even though these strategies may not yield results in the near term.

Due to the time involved with the movement of ground water, drinking water protection activities should be aimed at long-term management strategies even though these strategies may not yield results in the near term. A strong public education program should be a primary focus of any drinking water protection plan. There are multiple resources available to help communities implement protection programs, including the Drinking Water Academy of the EPA. For areas where transportation corridors transect the delineation, the Department of Transportation should be included in protection activities. Drinking water protection activities for agriculture should be coordinated with the Idaho State Department of Agriculture, the Soil Conservation Commission, the local Soil Conservation District, and the Natural Resources Conservation Service.

Assistance

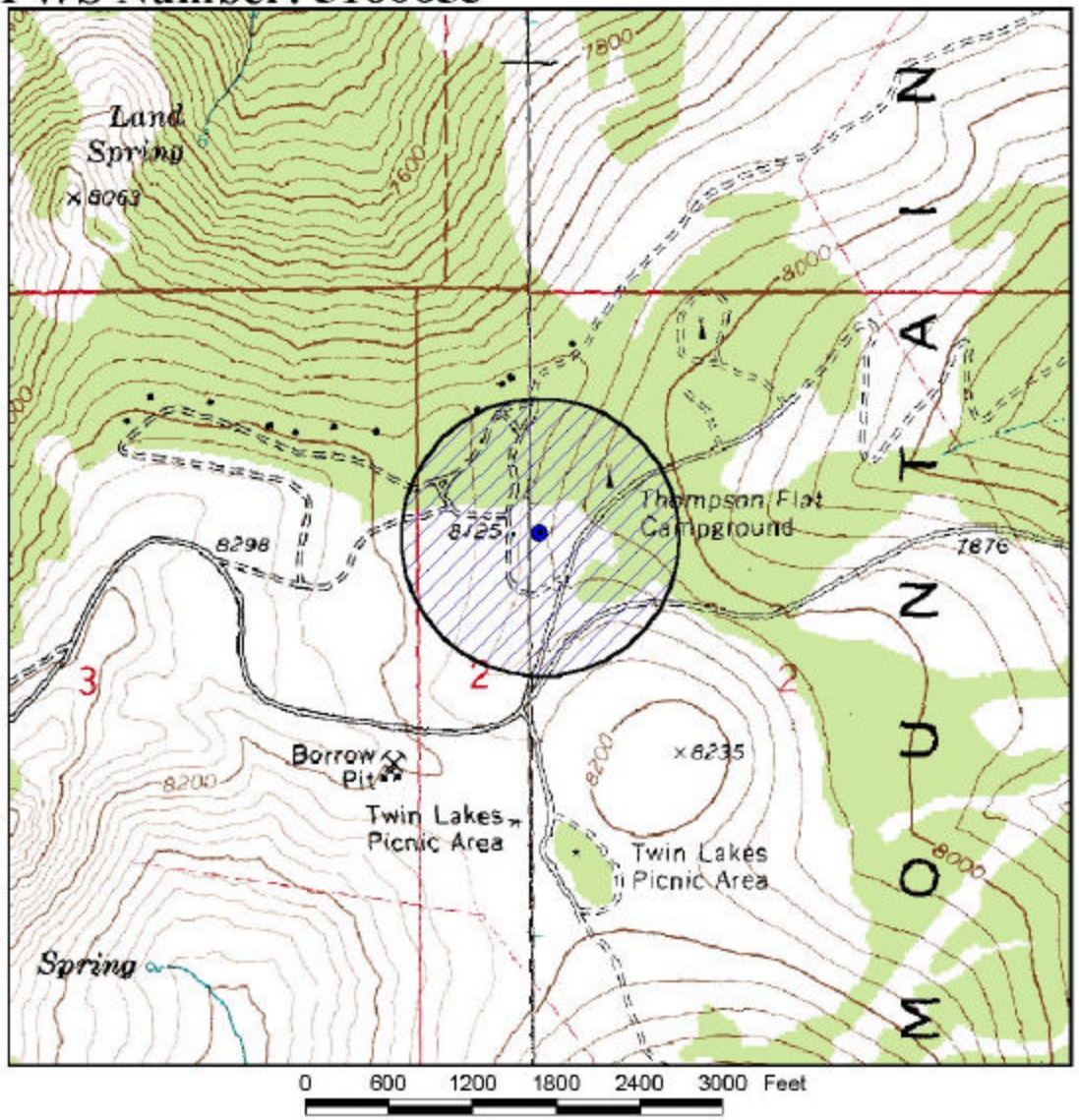
Public water suppliers and others may call the following DEQ offices with questions about this assessment and to request assistance with developing and implementing a local protection plan. In addition, draft protection plans may be submitted to the DEQ office for preliminary review and comments.

Twin Falls Regional DEQ Office	(208) 736-2190
State DEQ Office	(208) 373-0502

Website: http://www.deq.state.id.us

Water suppliers serving fewer than 10,000 persons may contact Melinda Harper (mlharper@idahoruralwater.com), Idaho Rural Water Association, at (208) 343-7001 for assistance with drinking water protection (formerly wellhead protection) strategies.

USFS Thompson Flat Campground: Spring
PWS Number: 5160053



LEGEND

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- 1B (3 yr TOT)
- Wellhead
- Enhanced Inventory
- CERCLIS Site
- RICRIS Site
- Dairy
- LUST Site
- Closed UST Site
- Open UST Site
- Business Mailing List
- NPDES Site
- Mine
- AST
- Toxic Release Inventory
- SARA Title III Site (EPCRA)
- Recharge Point
- Injection Well
- Group1 Site
- Cyanide Site
- Landfill
- Wastewater Land App.Site

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POTENTIAL CONTAMINANT INVENTORY
LIST OF ACRONYMS AND DEFINITIONS

AST (Aboveground Storage Tanks) – Sites with aboveground storage tanks.

Business Mailing List – This list contains potential contaminant sites identified through a yellow pages database search of standard industry codes (SIC).

CERCLIS – This includes sites considered for listing under the **Comprehensive Environmental Response Compensation and Liability Act (CERCLA)**. CERCLA, more commonly known as Superfund is designed to clean up hazardous waste sites that are on the national priority list (NPL).

Cyanide Site – DEQ permitted and known historical sites/facilities using cyanide.

Dairy – Sites included in the primary contaminant source inventory represent those facilities regulated by Idaho State Department of Agriculture (ISDA) and may range from a few head to several thousand head of milking cows.

Deep Injection Well – Injection wells regulated under the Idaho Department of Water Resources generally for the disposal of stormwater runoff or agricultural field drainage.

Enhanced Inventory – Enhanced inventory locations are potential contaminant source sites added by the water system. These can include new sites not captured during the primary contaminant inventory, or corrected locations for sites not properly located during the primary contaminant inventory. Enhanced inventory sites can also include miscellaneous sites added by the Idaho Department of Environmental Quality (IDEQ) during the primary contaminant inventory.

Floodplain – This is a coverage of the 100year floodplains.

Group 1 Sites – These are sites that show elevated levels of contaminants and are not within the priority one areas.

Inorganic Priority Area – Priority one areas where greater than 25% of the wells/springs show constituents higher than primary standards or other health standards.

Landfill – Areas of open and closed municipal and non-municipal landfills.

LUST (Leaking Underground Storage Tank) – Potential contaminant source sites associated with leaking underground storage tanks as regulated under RCRA.

Mines and Quarries – Mines and quarries permitted through the Idaho Department of Lands.)

Nitrate Priority Area – Area where greater than 25% of wells/springs show nitrate values above 5 mg/l.

NPDES (National Pollutant Discharge Elimination System) – Sites with NPDES permits. The Clean Water Act requires that any discharge of a pollutant to waters of the United States from a point source must be authorized by an NPDES permit.

Organic Priority Areas – These are any areas where greater than 25% of wells/springs show levels greater than 1% of the primary standard or other health standards.

Recharge Point – This includes active, proposed, and possible recharge sites on the Snake River Plain.

RICRIS – Site regulated under **Resource Conservation Recovery Act (RCRA)**. RCRA is commonly associated with the cradle to grave management approach for generation, storage, and disposal of hazardous wastes.

SARA Tier II (Superfund Amendments and Reauthorization Act Tier II Facilities) – These sites store certain types and amounts of hazardous materials and must be identified under the Community Right to Know Act.

Toxic Release Inventory (TRI) – The toxic release inventory list was developed as part of the Emergency Planning and Community Right to Know (Community Right to Know) Act passed in 1986. The Community Right to Know Act requires the reporting of any release of a chemical found on the TRI list.

UST (Underground Storage Tank) – Potential contaminant source sites associated with underground storage tanks regulated as regulated under RCRA.

Wastewater Land Applications Sites – These are areas where the land application of municipal or industrial wastewater is permitted by IDEQ.

Wellheads – These are drinking water well locations regulated under the Safe Drinking Water Act. They are not treated as potential contaminant sources.

NOTE: Many of the potential contaminant sources were located using a geocoding program where mailing addresses are used to locate a facility. Field verification of potential contaminant sources is an important element of an enhanced inventory.

Where possible, a list of potential contaminant sites unable to be located with geocoding will be provided to water systems to determine if the potential contaminant sources are located within the source water assessment area.

References Cited

Great Lakes-Upper Mississippi River Board of State and Provincial Public Health and Environmental Managers, 1997. "*Recommended Standards for Water Works.*"

Idaho Department of Environmental Quality, 1997. *Design Standards for Public Drinking Water Systems.* IDAPA 58.01.08.550.01.

Idaho Department of Water Resources, 1993. *Administrative Rules of the Idaho Water Resource Board: Well Construction Standards Rules*. IDAPA 37.03.09.

Idaho Division of Environmental Quality, 1999, Idaho Source Water Assessment Plan, October.

South Central District Health Department, 2000. Sanitary Survey Inspection and Report for USFS Thompson Flat Campground PWS #5160053.

South Central District Health Department, 2000. Ground Water Under Direct Influence Field Survey for USFS Thompson Flat Campground PWS #5160053.

State Drinking Water Information System (SDWIS). IDEQ. 2003.

Susceptibility Analysis Formulas

The final scores for the susceptibility analysis were determined using the following formulas:

1) IOC/VOC/SOC Final Score = (Potential Contaminant/Land Use X 0.818) + System Construction Score.

2) Microbial Final Score = (Potential Contaminant/Land Use x 1.125) + System Construction Score.

Spring Source Final Susceptibility Scoring

0-7 = Low Susceptibility

8-15 = Moderate Susceptibility

16-21 = High Susceptibility

Ground Water Susceptibility Report Public Water System Name : USFS THOMPSON FLAT CAMPGROUND Well# : SPRING

Public Water System Number 5160053 3/27/03 10:38:49 AM

1. System Construction		SCORE
Intake structure and area constructed to meet Idaho Code	YES	0
Does the water enter the distribution system without contacting the atmosphere YES = lower score, NO = higher score	NO	2
Total System Construction Score		2

3. Potential Contaminant / Land Use - ZONE 1A		IOC Score	VOC Score	SOC Score	Microbial Score
Land Use Zone 1A	UNDEVELOPED	0	0	0	0
Farm chemical use high	YES	2	2	2	
IOC, VOC, SOC, or Microbial sources in Zone 1A	YES	NO	NO	NO	YES
Total Potential Contaminant Source/Land Use Score - Zone 1A		2	2	2	2
Potential Contaminant / Land Use - ZONE 1B					
Contaminant sources present (Number of Sources)	YES	2	1	1	2
(Score = # Sources X 2) 8 Points Maximum		4	2	2	4
Sources of Class II or III leacheable contaminants or	YES	2	1	1	
4 Points Maximum		2	1	1	
Zone 1B contains or intercepts a Group 1 Area	NO	0	0	0	0
Land use Zone 1B	Less Than 25% Agricultural Land	0	0	0	0
Total Potential Contaminant Source / Land Use Score - Zone 1B		6	3	3	4
Cumulative Potential Contaminant / Land Use Score		8	5	5	6
4. Final Susceptibility Source Score		9	6	6	9
5. Final Well Ranking		Moderate	Low	Low	High